



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

PERIODIC TEST-1 2025-26 MARKING SCHEME -MATHEMATICS

Class: IX
Date: 30.06.25
Admission no:

Time: 1hr
Max Marks: 25
Roll no:

General Instructions:

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1. This Question Paper has 3 Sections A, B and C.
2. Section A has 5 MCQs carrying 1 mark each
3. Section B has 4 questions carrying 02 marks each.
4. Section C has 4 questions carrying 03 marks each.
5. All Questions are compulsory.

SECTION A

1. If the decimal representation of a number is non-terminating, non-repeating then the number is 1m
(a) an irrational number (b) a natural number (c) a rational number (d) None of these
2. The square root of which number is rational 1m
(a) 7 (b) 1.96 (c) 0.4 (d) None of these
3. $(16)^{3/4}$ is equal to 1m
(a) 2 (b) 4 (c) 8 (d) None of these
4. What is the area of an equilateral triangle with side 2 cm? 1m
(a) $\sqrt{6}\text{cm}^2$ (b) $\sqrt{3}\text{cm}^2$ (c) $\sqrt{8}\text{cm}^2$ (d) None of these
5. An isosceles right triangle has an area of 8 cm^2 . The length of its one of the sides other than hypotenuse is 1m
(a) 4cm (b) 2cm (c) 8cm (d) None of these

SECTION B

6. Find the value of 2m

- (a) $32^{1/5}$
 (b) $100^{-1/2}$

A:- (a) 2 1m
 (b) 1/10 1m

7. Find the area of a triangle two sides of which are 18 cm and 10 cm and the perimeter is 42 cm. 2m

A:- Given:

$a = 18$ cm, $b = 10$ cm, and perimeter = 42 cm

Let c be the third side of the triangle.

Step 1: Find the third side of the triangle, that is c

We know, perimeter = $2s$,

$$2s = 42$$

$$s = 21$$

$$\text{Again, } s = (a+b+c)/2$$

Put the value of s , and we get

$$21 = (18+10+c)/2$$

$$42 = 28 + c$$

$$c = 14 \text{ cm}$$

Step 2: Find the area of the triangle

1m

$$\text{Area of triangle} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{21(21-18)(21-10)(21-14)}$$

$$= \sqrt{21 \times 3 \times 11 \times 7}$$

$$= \sqrt{4851}$$

$$= 21\sqrt{11}$$

1m

$$\text{Area} = 21\sqrt{11} \text{ square cm.}$$

8. Insert four irrational numbers between 2 and 3. 2m

A:- 2.123456.....

2.0987654.....

1m

2.223435...

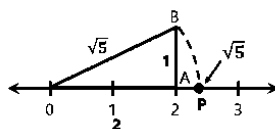
2.909876... etc

1m

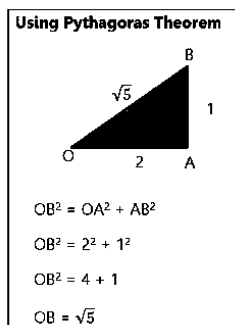
9. Represent $\sqrt{5}$ on number line. 2m

A:-

Let's draw the number line



Hence, point P is $\sqrt{5}$



2m

SECTION D

10. In a triangle ABC, AB = 15cm, BC = 13cm and AC = 14cm. Find the area of triangle ABC and hence its altitude on AC. 3m

A:- Let the sides of the given triangle be AB = a, BC = b, and AC = c, respectively.

Here, a = 15 cm

b = 13 cm

c = 14 cm

From Heron's Formula;

Area = 84

Area = 84 cm²

2m

Let BE is perpendicular on AC

Now, the area of the triangle = $\frac{1}{2} \times \text{Base} \times \text{Height}$

$\frac{1}{2} \times \text{BE} \times \text{AC} = 84$

BE = 12cm

1m

11. A traffic signal board, indicating 'SCHOOL AHEAD', is an equilateral triangle with side a. Find the area of the signal board, using Heron's formula. If its perimeter is 180 cm, what will be the area of the signal board? 3m

A:- Let each side of the equilateral triangle be a.

Semi-perimeter of the triangle,

$$s = \frac{a + a + a}{2} = \frac{3a}{2}$$

$$\text{Area of the triangle} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{s(s-a)(s-a)(s-a)} = \sqrt{s(s-a)^3}$$

1m

$$= \sqrt{\frac{3a}{2} \left(\frac{3a}{2} - a \right)^3}$$

$$= \sqrt{\frac{3a}{2} \times \left(\frac{a}{2} \right)^3}$$

$$= \sqrt{\frac{3a^4}{2^4}} = \frac{\sqrt{3}}{4} a^2$$



1m

Now, its perimeter is 180 cm.

$$\therefore a + a + a = 180 \text{ cm}$$

$$\Rightarrow 3a = 180 \text{ cm}$$

$$\Rightarrow a = \frac{180}{3} \text{ cm} = 60 \text{ cm}$$

$$\text{Thus, area of the triangle} = \frac{\sqrt{3}}{4} a^2$$

$$= \frac{\sqrt{3}}{4} (60)^2 \text{ cm}^2$$

$$= 900\sqrt{3} \text{ cm}^2$$

1m

12. Show that 0.3333... can be expressed in the form $\frac{p}{q}$. 3m

A:- Let x = 0.3333....

Multiply with 10,

$$10x = 3.3333...$$

Now, 3.3333... = 3 + x (as we assumed x = 0.3333...)

$$\text{Thus, } 10x = 3 + x$$

$$10x - x = 3$$

2m

$$9x = 3$$

$$x = \frac{1}{3}$$

Therefore, 0.3333... = 1/3. Here, 1/3 is in the form of p/q and q ≠ 0.

1m

13. Rationalise the denominator of

3m

(a) $\frac{1}{\sqrt{5}}$

(b) $\frac{1}{\sqrt{7}-2}$

A:-

(a) $\frac{\sqrt{5}}{5}$

1m

(b) $\frac{\sqrt{7}+2}{3}$

2m

******BEST OF LUCK******